

# Package: aemo (via r-universe)

May 31, 2026

**Title** Download Australian Energy Market Operator Data

**Version** 0.4.2

**Description** Fetch Australian Energy Market Operator (AEMO) public data from 'NEMweb' <<http://nemweb.com.au>> and the Market Management System Data Model (MMSDM) historical archive. Provides tidy access to 5-minute and 30-minute wholesale electricity prices, regional demand, dispatch-unit output, interconnector flows, rooftop photovoltaic generation, generator bids, predispach forecasts, frequency control ancillary services markets, and gas market data across the National Electricity Market (NEM) regions. Data is published by AEMO under its Copyright Permissions Notice  
<<https://www.aemo.com.au/privacy-and-legal-notice/copyright-permissions>>.

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aemo_bids	<i>Generator bid stack</i>
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### Description

Returns BIDDAYOFFER\_D (daily bid summary: 10 price bands, MaxAvail, fixed load, locked at 12:30 D-1), BIDPEROFFER\_D (per-interval availability and rebids), or the two joined on (duid, settlementdate, bidtype).

### Usage

```
aemo_bids(
  duid,
  start,
  end,
  resolution = c("day", "period", "joined"),
  allow_large = FALSE
)
```

### Arguments

duid	Character vector of DUIDs. Required.
start, end	Window.
resolution	One of "day" (default, BIDDAYOFFER_D only), "period" (BIDPEROFFER_D only), or "joined" (BIDDAYOFFER_D inner-joined to BIDPEROFFER_D on (duid, settlementdate, bidtype)).
allow_large	Logical. Default FALSE.

### Details

**Parent / child structure.** BIDDAYOFFER\_D carries the **price bands** (priceband1..priceband10), which are locked at 12:30 on the day ahead and cannot be rebid. BIDPEROFFER\_D carries the **per-interval availability bands** (bandavail1..bandavail10), which can be rebid intraday. Serious bidding analysis (Goncalves & Menezes 2022 Energy Economics 113 106398; Nelson et al. 2024 AJARE 68(4)) needs both joined.

**Size warning.** BIDPEROFFER\_D monthly archives are multi-gigabyte. By default aemo\_bids() refuses spans longer than 30 days; pass allow\_large = TRUE to override.

**Upstream gap.** AEMO has a documented gap in BIDPEROFFER\_D between March 2021 and July 2024. Rows in that range may be missing.

### Value

An aemo\_tbl.

### See Also

Other dispatch: [aemo\\_constraints\(\)](#), [aemo\\_dispatch\\_units\(\)](#), [aemo\\_fcas\\_enablement\(\)](#), [aemo\\_gencon\(\)](#), [aemo\\_interconnector\(\)](#), [aemo\\_market\\_notices\(\)](#), [aemo\\_outages\(\)](#), [aemo\\_rooftop\\_pv\(\)](#), [aemo\\_spd\\_constraints\(\)](#)

## Examples

```
op <- options(aemo.cache_dir = tempdir())
try({
  now <- Sys.time()
  # Daily bid summary (price bands)
  b <- aemo_bids(duid = "BW01",
                start = now - 86400, end = now)

  # Joined: price bands + per-interval volumes
  bj <- aemo_bids(duid = "BW01", start = now - 86400, end = now,
                 resolution = "joined")
})
options(op)
```

---

aemo\_cache\_info

*Inspect the local aemo cache*

---

## Description

Inspect the local aemo cache

## Usage

```
aemo_cache_info()
```

## Value

A list with `dir`, `n_files`, `size_bytes`, `size_human`, `files`.

## See Also

Other configuration: [aemo\\_clear\\_cache\(\)](#), [aemo\\_throttle\(\)](#)

## Examples

```
op <- options(aemo.cache_dir = tempdir())
aemo_cache_info()
options(op)
```

---

aemo_clear_cache	<i>Clear the aemo cache</i>
------------------	-----------------------------

---

**Description**

Clear the aemo cache

**Usage**

```
aemo_clear_cache()
```

**Value**

Invisibly returns NULL.

**See Also**

Other configuration: [aemo\\_cache\\_info\(\)](#), [aemo\\_throttle\(\)](#)

**Examples**

```
op <- options(aemo.cache_dir = tempdir())
aemo_clear_cache()
options(op)
```

---

aemo_constraints	<i>Binding transmission and system constraints</i>
------------------	--

---

**Description**

Returns the DISPATCHCONSTRAINT table from NEMweb: one row per binding (or near-binding) constraint per 5-minute dispatch interval. Each row records the constraint ID, the left-hand side (LHS) and right-hand side (RHS) values, the marginal value (shadow price on the constraint in AUD/MWh), and the violation degree if any.

**Usage**

```
aemo_constraints(  
  start,  
  end,  
  constraint_id = NULL,  
  intervention = FALSE,  
  min_marginal_value = 0.01  
)
```

**Arguments**

start, end	Window (inclusive), character or POSIXct.
constraint_id	Optional character vector of constraint IDs (e.g. "N>>N-NIL_1", "V::S_NIL_TBSE"). NULL returns all binding constraints in the window.
intervention	Logical. Default FALSE.
min_marginal_value	Numeric. Only return constraints with marginal value at or above this threshold (AUD/MWh). 0 returns every row; the default of 0.01 filters out near-zero shadow prices that are typically noise.

**Details**

This is the table that answers the question "why was the RRP so high at 17:35?": the sum of marginal values across binding constraints at the Regional Reference Node equals the regional price component attributable to network limits.

Constraint equations and RHS terms (GENCONDATA, GENCONSETINVOKE) are published through MMSDM on a separate cadence and are not exposed directly by this function; use [aemo\\_nemweb\\_download\(\)](#) on an MMSDM URL for those.

**Value**

An `aemo_tbl` with columns `settlementdate`, `constraintid`, `rhs`, `marginalvalue`, `violationdegree`, `lhs`, plus the intervention flag.

**Source**

AEMO NEMweb DISPATCHIS\_Reports, DISPATCHCONSTRAINT table.

**See Also**

Other dispatch: [aemo\\_bids\(\)](#), [aemo\\_dispatch\\_units\(\)](#), [aemo\\_fcas\\_enablement\(\)](#), [aemo\\_gencon\(\)](#), [aemo\\_interconnector\(\)](#), [aemo\\_market\\_notices\(\)](#), [aemo\\_outages\(\)](#), [aemo\\_rooftop\\_pv\(\)](#), [aemo\\_spd\\_constraints\(\)](#)

**Examples**

```
op <- options(aemo.cache_dir = tempdir())
try({
  now <- Sys.time()
  c <- aemo_constraints(start = now - 3600, end = now)
  head(c)
})
options(op)
```

---

aemo_demand	<i>Regional electricity demand</i>
-------------	------------------------------------

---

### Description

Returns 5-minute regional demand from DISPATCHREGIONSUM. Three demand measures are supported, aligned with AEMO's Demand Terms taxonomy:

### Usage

```
aemo_demand(
  region,
  start,
  end,
  measure = c("operational", "operational_less_snsng", "native"),
  intervention = FALSE
)
```

### Arguments

region	NEM region code. Vector accepted.
start, end	Window (inclusive), character or POSIXct.
measure	One of "operational" (default), "operational_less_snsng", or "native".
intervention	Logical. Default FALSE filters to market pricing runs.

### Details

- "operational" (default): TOTALDEMAND, the grid-measured demand met by scheduled and semi-scheduled generation plus net interchange. This is the quantity AEMO dispatches.
- "operational\_less\_snsng": TOTALDEMAND minus small non-scheduled generation (SS\_SOLAR\_UIGF + SS\_WIND\_UIGF where present).
- "native": TOTALDEMAND plus estimated rooftop PV generation. Closest to end-use consumption. If the rooftop PV component is not available in DISPATCHREGIONSUM the function warns and returns TOTALDEMAND; users should join with aemo\_rooftop\_pv() for a full native-demand estimate.

Timestamps are AEST (UTC+10, no DST).

### Value

An aemo\_tbl with columns settlementdate, regionid, demand\_mw (the requested measure), plus the underlying DISPATCHREGIONSUM columns used in the derivation.

### Source

AEMO NEMweb, AEMO Copyright Permissions Notice.

**Examples**

```
op <- options(aemo.cache_dir = tempdir())
try({
  now <- Sys.time()
  d <- aemo_demand("VIC1", now - 3600, now)
  head(d)
})
options(op)
```

---

aemo\_dispatch\_units *Per-DUID dispatch output*

---

**Description**

Returns 5-minute generator output for one or more DUIDs. Three measures are available:

**Usage**

```
aemo_dispatch_units(
  duid = NULL,
  start,
  end,
  measure = c("scada_mw", "target_mw", "both")
)
```

**Arguments**

duid	Optional character vector of DUIDs. NULL returns all generators.
start, end	Window (inclusive).
measure	One of "scada_mw" (default), "target_mw", or "both".

**Details**

- "scada\_mw" (default): actual metered output from DISPATCH\_UNIT\_SCADA (SCADAVALUE).
- "target\_mw": dispatch target from DISPATCHLOAD (TOTALCLEARED). This is the MW AEMO *asked* the unit to produce at the end of the interval.
- "both": returns SCADAVALUE, INITIALMW (SCADA at the start of the interval) and TOTALCLEARED (target at the end) in a single row per DUID per interval. Use this for ramp-trajectory research: the ramp applied during the interval is the straight line from INITIALMW to TOTALCLEARED.

Timestamps are AEST (UTC+10, no DST).

**Value**

An aemo\_tbl with columns settlementdate, duid, and the requested measure(s).

**See Also**

Other dispatch: [aemo\\_bids\(\)](#), [aemo\\_constraints\(\)](#), [aemo\\_fcas\\_enablement\(\)](#), [aemo\\_gencon\(\)](#), [aemo\\_interconnector\(\)](#), [aemo\\_market\\_notices\(\)](#), [aemo\\_outages\(\)](#), [aemo\\_rooftop\\_pv\(\)](#), [aemo\\_spd\\_constraints\(\)](#)

**Examples**

```
op <- options(aemo.cache_dir = tempdir())
try({
  now <- Sys.time()
  # SCADA actual
  d <- aemo_dispatch_units(duid = "BW01", start = now - 3600,
                          end = now)

  # Paired: INITIALMW, TOTALCLEARED, SCADAVALUE (ramp research)
  d_both <- aemo_dispatch_units(duid = "BW01",
                              start = now - 3600, end = now,
                              measure = "both")
})
options(op)
```

aemo\_dlf

*Distribution Loss Factors (DLF) by connection point***Description**

Returns the Distribution Loss Factor for NEM connection points from the MMSDM LOSSFACTORMODEL table. DLFs measure the average energy loss on the distribution network between a connection point and the transmission network boundary; a DLF of 1.02 means the generator must produce 2% more energy than it delivers to the transmission system.

**Usage**

```
aemo_dlf(year = NULL, connection_point_id = NULL)
```

**Arguments**

`year` Financial year(s) as "YYYY-YY". NULL returns all available years.  
`connection_point_id` Optional character vector of connection point IDs.

**Details**

DLFs are published annually by AEMO (NER 3.6.3) and combined with MLFs in settlement to give the total loss factor (TLF = MLF x DLF) used in energy payments.

**Value**

An `aemo_tbl` with at minimum `financial_year`, `connectionpointid`, and `dlf`.

**Source**

AEMO MMSDM archive, LOSSFACTORMODEL table. AEMO Copyright Permissions Notice.

**See Also**

Other reference: [aemo\\_interconnectors\(\)](#), [aemo\\_mlf\(\)](#), [aemo\\_participants\(\)](#), [aemo\\_price\\_caps\(\)](#), [aemo\\_regions\(\)](#), [aemo\\_settlement\(\)](#), [aemo\\_snapshot\(\)](#), [aemo\\_units\(\)](#)

**Examples**

```
op <- options(aemo.cache_dir = tempdir())
try({
  dlf <- aemo_dlf(year = "2024-25")
  head(dlf)
})
options(op)
```

---

aemo\_fcas

*Frequency control ancillary services (FCAS) prices*


---

**Description**

Returns regional FCAS market prices across the eight contingency services plus the two regulation services. Ten services are live in the NEM since R1/L1 Very Fast commenced on 9 October 2023.

**Usage**

```
aemo_fcas(region, start, end, service = NULL, intervention = FALSE)
```

**Arguments**

region	NEM region code.
start, end	Window (inclusive).
service	Optional character vector of service names (e.g. "RAISE6SEC", "LOWER60SEC", "RAISE1SEC").
intervention	Logical. See <a href="#">aemo_price()</a> .

**Details**

Thin wrapper over `aemo_price(..., market = "fcas")`.

**Value**

An `aemo_tbl` with one row per interval and columns for each requested FCAS RRP (AUD/MW).

**See Also**

Other price: [aemo\\_price\(\)](#)

**Examples**

```
op <- options(aemo.cache_dir = tempdir())
try({
  now <- Sys.time()
  f <- aemo_fcas("NSW1", now - 3600, now)
  head(f)
})
options(op)
```

---

aemo\_fcas\_enablement *FCAS enablement volumes by generator unit*

---

**Description**

Returns the MW enabled for each of the ten Frequency Control Ancillary Services (FCAS) per DUID per 5-minute dispatch interval from DISPATCHLOAD. This is the quantity side of the FCAS market: how much each unit was enabled (dispatched) to provide each service, as distinct from the price returned by [aemo\\_fcas\(\)](#).

**Usage**

```
aemo_fcas_enablement(
  duid = NULL,
  start,
  end,
  service = NULL,
  intervention = FALSE
)
```

**Arguments**

duid	Optional character vector of DUIDs. NULL returns all units. See <a href="#">aemo_units()</a> for the full DUID registry.
start, end	Window (inclusive), character or POSIXct.
service	Optional character vector of service names, e.g. <code>c("raise6sec", "lowerreg")</code> . Case-insensitive. NULL returns all ten services.
intervention	Logical. Default FALSE.

**Details**

Ten services are active since 9 October 2023 when Very Fast (RAISE1SEC / LOWER1SEC) commenced. Before that date only eight services are present; the `raise1secmw` / `lower1secmw` columns will be NA for intervals before that date.

**Value**

An aemo\_tbl with columns settlementdate, duid, and one column per FCAS service (raise1secmw, lower1secmw, raise6secmw, lower6secmw, raise60secmw, lower60secmw, raise5minmw, lower5minmw, raiseregmw, lowerregmw). Values are MW; zero means the unit was not enabled for that service.

**Source**

AEMO NEMweb DISPATCHIS\_Reports, DISPATCHLOAD table.

**See Also**

Other dispatch: [aemo\\_bids\(\)](#), [aemo\\_constraints\(\)](#), [aemo\\_dispatch\\_units\(\)](#), [aemo\\_gencon\(\)](#), [aemo\\_interconnector\(\)](#), [aemo\\_market\\_notices\(\)](#), [aemo\\_outages\(\)](#), [aemo\\_rooftop\\_pv\(\)](#), [aemo\\_spd\\_constraints\(\)](#)

**Examples**

```
op <- options(aemo.cache_dir = tempdir())
try({
  now <- Sys.time()
  e <- aemo_fcas_enablement(start = now - 3600, end = now)
  head(e)
})
options(op)
```

---

aemo\_gas

*Gas market data (STTM, DWGM)*


---

**Description**

Returns Short Term Trading Market (STTM, Adelaide, Brisbane, Sydney hubs) or Declared Wholesale Gas Market (DWGM, Victoria) prices and volumes.

**Usage**

```
aemo_gas(market = c("sttm", "dwgm"), hub = NULL, start, end)
```

**Arguments**

market	One of "sttm" (default) or "dwgm".
hub	Optional STTM hub: "adelaide", "brisbane", or "sydney". Ignored for DWGM.
start, end	Window.

**Value**

An aemo\_tbl.

**Examples**

```
op <- options(aemo.cache_dir = tempdir())
try({
  now <- Sys.time()
  g <- aemo_gas(market = "sttm", hub = "sydney",
               start = now - 7 * 86400, end = now)

  head(g)
})
options(op)
```

aemo\_gencon

*Generic constraint equations and RHS terms (GENCONDATA)***Description**

Downloads the GENCONDATA table from the most recent MMSDM monthly archive. GENCONDATA contains the equation definitions for every generic constraint active in the NEM: the constraint ID, the type (equality/inequality), a description of what the constraint models (thermal limit, voltage stability, system strength, etc.), and the default RHS value.

**Usage**

```
aemo_gencon(constraint_id = NULL, type = NULL)
```

**Arguments**

constraint_id	Optional character vector of constraint IDs to filter on. NULL returns all equations.
type	Optional constraint type filter (e.g. "LE" for <=, "GE" for >=, "EQ" for =). NULL returns all types.

**Details**

Pair this with [aemo\\_constraints\(\)](#) to go from a binding dispatch interval to the underlying network equation. The workflow is: [aemo\\_constraints\(\)](#) tells you *which* constraint bound and *how hard* (marginalvalue = shadow price); [aemo\\_gencon\(\)](#) tells you *what the constraint is* (which elements and why the RHS was set at that level).

**Value**

An `aemo_tbl` with columns including `genconid` (constraint ID), `constrainttype`, `description`, `genericconstraintrhs` (default RHS value). Additional columns from GENCONDATA (effective dates, generic constraint equation weights) will be present when available.

**Source**

AEMO NEMweb MMSDM archive, GENCONDATA table. AEMO Copyright Permissions Notice.

**See Also**

[aemo\\_constraints\(\)](#) for the real-time binding constraint shadow prices.

Other dispatch: [aemo\\_bids\(\)](#), [aemo\\_constraints\(\)](#), [aemo\\_dispatch\\_units\(\)](#), [aemo\\_fcas\\_enablement\(\)](#), [aemo\\_interconnector\(\)](#), [aemo\\_market\\_notices\(\)](#), [aemo\\_outages\(\)](#), [aemo\\_rooftop\\_pv\(\)](#), [aemo\\_spd\\_constraints\(\)](#)

**Examples**

```
op <- options(aemo.cache_dir = tempdir())
try({
  # Find equations for the Heywood interconnector thermal limits
  g <- aemo_gencon(constraint_id = c("V::S_NIL_TBSE", "V::S_NIL_FCSPS"))
  head(g)
})
options(op)
```

---

aemo\_interconnector     *NEM interconnector flows*

---

**Description**

Returns MW flows, losses, and limits for one or more NEM interconnectors from DISPATCHINTERCONNECTORRES.

**Usage**

```
aemo_interconnector(flow = NULL, start, end, intervention = FALSE)
```

**Arguments**

flow	Optional character vector of interconnector IDs.
start, end	Window.
intervention	Logical. Default FALSE.

**Details**

AEMO's METEREDMWFLOW is positive when power flows from REGIONFROM to REGIONTO. For per-interconnector direction conventions see [aemo\\_interconnectors\(\)](#).

**Value**

An aemo\_tbl.

**See Also**

Other dispatch: [aemo\\_bids\(\)](#), [aemo\\_constraints\(\)](#), [aemo\\_dispatch\\_units\(\)](#), [aemo\\_fcas\\_enablement\(\)](#), [aemo\\_gencon\(\)](#), [aemo\\_market\\_notices\(\)](#), [aemo\\_outages\(\)](#), [aemo\\_rooftop\\_pv\(\)](#), [aemo\\_spd\\_constraints\(\)](#)

## Examples

```
op <- options(aemo.cache_dir = tempdir())
try({
  now <- Sys.time()
  i <- aemo_interconnector(flow = "V-SA",
                          start = now - 3600, end = now)

  head(i)
})
options(op)
```

---

aemo\_interconnectors *NEM interconnectors*

---

## Description

Returns a static table of the seven NEM interconnectors. The seventh entry is Project EnergyConnect (PEC), whose Stage 1 was energised on 30 April 2025 with full ~800 MW capability expected mid-2026.

## Usage

```
aemo_interconnectors()
```

## Value

An `aemo_tbl` with columns `interconnector_id`, `from_region`, `to_region`, `name`, `energised`.

## See Also

Other reference: [aemo\\_dlf\(\)](#), [aemo\\_mlf\(\)](#), [aemo\\_participants\(\)](#), [aemo\\_price\\_caps\(\)](#), [aemo\\_regions\(\)](#), [aemo\\_settlement\(\)](#), [aemo\\_snapshot\(\)](#), [aemo\\_units\(\)](#)

## Examples

```
aemo_interconnectors()
```

---

aemo\_market\_notices    *NEM market notices*

---

### Description

Returns the MARKETNOTICEDATA feed from MMSDM. Market notices are AEMO's free-text log of market-relevant events: Lack of Reserve (LOR1/2/3) declarations, Reliability and Emergency Reserve Trader (RERT) activations, market suspensions, market directions, unit withdrawals, system security events, administered price declarations, and operator advisories.

### Usage

```
aemo_market_notices(start, end, notice_type = NULL, region = NULL)
```

### Arguments

start, end	Window (inclusive) applied to EFFECTIVEDATE.
notice_type	Optional character vector (e.g. "LOR1", "RERT", "PRICES SUBJECT TO REVIEW"). Case-insensitive substring match.
region	Optional NEM region code.

### Details

Pair with [aemo\\_constraints\(\)](#) and [aemo\\_price\(\)](#) to sequence the causal chain of a price event. Rangarajan, Svec, Foley and Trück (2025, *Energy Economics* 141) use MARKETNOTICEDATA to order the intervention messages that mark entry to and exit from the June 2022 NEM suspension.

### Value

An aemo\_tbl with columns from MARKETNOTICEDATA: noticeid, effectivedate, typeid (notice category), originator, priority, reason (the notice text), externalreference, and where present regionid.

### Source

AEMO NEMweb MMSDM archive, MARKETNOTICEDATA table. AEMO Copyright Permissions Notice.

### See Also

Other dispatch: [aemo\\_bids\(\)](#), [aemo\\_constraints\(\)](#), [aemo\\_dispatch\\_units\(\)](#), [aemo\\_fcas\\_enablement\(\)](#), [aemo\\_gencon\(\)](#), [aemo\\_interconnector\(\)](#), [aemo\\_outages\(\)](#), [aemo\\_rooftop\\_pv\(\)](#), [aemo\\_spd\\_constraints\(\)](#)

**Examples**

```
op <- options(aemo.cache_dir = tempdir())
try({
  # LOR declarations during the June 2022 NEM suspension
  n <- aemo_market_notices(
    start = "2022-06-13",
    end   = "2022-06-14",
    notice_type = "LOR"
  )
  head(n)
})
options(op)
```

aemo\_mlf

*Marginal Loss Factors (MLF) by DUID and financial year***Description**

Returns the Marginal Loss Factor applicable to each DUID for the requested financial year(s). MLFs measure the incremental network loss at a connection point relative to the Regional Reference Node (RRN); a DUID with MLF = 0.97 receives 97% of the regional RRP per MWh generated.

**Usage**

```
aemo_mlf(year = NULL, duid = NULL)
```

**Arguments**

year	Financial year(s) as "YYYY-YY" strings (e.g. "2024-25"). NULL returns all available years. Multiple years accepted.
duid	Optional character vector of DUIDs to filter on. NULL returns all DUIDs. See <a href="#">aemo_units()</a> for the full DUID registry.

**Details**

MLFs are published annually by AEMO under NER 3.6.2 and are used in settlement calculations and in PPA revenue reconstruction. The function first attempts to download the TRANSMISSIONLOSSFACTOR table from the most recent MMSDM monthly archive; if that fails it returns a bundled static table covering FY 2020-21 to FY 2025-26 for ~20 well-known DUIDs.

**Value**

An aemo\_tbl with columns financial\_year, duid, connectionpointid, regionid, mlf. From a live MMSDM download additional columns (participantid, lastchanged) may also be present.

**Source**

AEMO MMSDM archive, TRANSMISSIONLOSSFACTOR table. AEMO Copyright Permissions Notice.

**See Also**

[aemo\\_units\(\)](#) for the DUID registry, [aemo\\_price\(\)](#) for regional RRP.

Other reference: [aemo\\_dlf\(\)](#), [aemo\\_interconnectors\(\)](#), [aemo\\_participants\(\)](#), [aemo\\_price\\_caps\(\)](#), [aemo\\_regions\(\)](#), [aemo\\_settlement\(\)](#), [aemo\\_snapshot\(\)](#), [aemo\\_units\(\)](#)

**Examples**

```
op <- options(aemo.cache_dir = tempdir())
try({
  mlf <- aemo_mlf(year = "2024-25")
  head(mlf)
})
options(op)
```

---

aemo\_nemweb\_download *Download a NEMweb zipped CSV to the local cache*

---

**Description**

Thin wrapper over the internal cache-aware downloader.

**Usage**

```
aemo_nemweb_download(url, cache = TRUE)
```

**Arguments**

url	A fully-qualified NEMweb URL (zipped CSV).
cache	Logical. Reuse cached file if present.

**Value**

Path to the cached file.

**See Also**

Other low-level: [aemo\\_nemweb\\_ls\(\)](#)

## Examples

```
op <- options(aemo.cache_dir = tempdir())
try({
  files <- aemo_nemweb_ls("/Reports/Current/DispatchIS_Reports/")
  if (nrow(files) > 0) {
    f <- aemo_nemweb_download(files$url[1])
    file.exists(f)
  }
})
options(op)
```

---

aemo_nemweb_ls	<i>List files in a NEMweb directory</i>
----------------	---

---

## Description

Returns a data frame of files in a NEMweb path, parsed from the Apache directory-listing HTML.

## Usage

```
aemo_nemweb_ls(path)
```

## Arguments

path	NEMweb subpath (e.g. "/Reports/Current/DispatchIS_Reports/"). Leading and trailing slashes are optional.
------	--

## Value

A data frame with name, modified, size, url.

## Source

AEMO NEMweb <http://nemweb.com.au>, published under the AEMO Copyright Permissions Notice.

## See Also

Other low-level: [aemo\\_nemweb\\_download\(\)](#)

## Examples

```
op <- options(aemo.cache_dir = tempdir())
try({
  files <- aemo_nemweb_ls("/Reports/Current/DispatchIS_Reports/")
  head(files)
})
options(op)
```

aemo\_outages

*Planned and forced network outages***Description**

Returns the NETWORK\_OUTAGEDetail table from MMSDM, which records every planned and forced outage on NEM transmission and distribution network elements. Outages are a primary driver of binding constraints and price spikes: when a line or transformer is out of service the network is more constrained, reducing the thermal limits that appear as RHS values in DISPATCHCONSTRAINT.

**Usage**

```
aemo_outages(start, end, element_id = NULL, outage_type = NULL, region = NULL)
```

**Arguments**

start,end	Outage window (inclusive). Filters on starttime and endtime: any outage active during the window is returned. Character or POSIXct.
element_id	Optional character vector of network element IDs. NULL returns all elements.
outage_type	Optional character. One of "PLANNED", "FORCED", or NULL (both). Case-insensitive.
region	Optional NEM region code. Filters on the region column where available.

**Details**

**Use case.** Pair with [aemo\\_constraints\(\)](#) to explain a price spike: aemo\_outages() tells you which elements were off-service at the time; aemo\_constraints() tells you which constraints bound; together they answer "why was SA spot price AUD 15,000 at 17:35?".

**Value**

An aemo\_tbl with columns from NETWORK\_OUTAGEDetail including outageid, starttime, endtime, substationid, equipmenttype, equipmentid, outage\_type, regionid, and restarttimeunknown. Exact column set depends on the MMSDM version.

**Source**

AEMO NEMweb MMSDM archive, NETWORK\_OUTAGEDetail table. AEMO Copyright Permissions Notice.

**See Also**

[aemo\\_constraints\(\)](#) for the binding constraint shadow prices that these outages drive.

Other dispatch: [aemo\\_bids\(\)](#), [aemo\\_constraints\(\)](#), [aemo\\_dispatch\\_units\(\)](#), [aemo\\_fcas\\_enablement\(\)](#), [aemo\\_gencon\(\)](#), [aemo\\_interconnector\(\)](#), [aemo\\_market\\_notices\(\)](#), [aemo\\_rooftop\\_pv\(\)](#), [aemo\\_spd\\_constraints\(\)](#)

## Examples

```
op <- options(aemo.cache_dir = tempdir())
try({
  # Forced outages during a recent high-price period in SA
  o <- aemo_outages(
    start = "2024-03-01",
    end   = "2024-03-02",
    outage_type = "FORCED"
  )
  head(o)
})
options(op)
```

---

aemo\_participants

*NEM market participants and their registered DUIDs*

---

## Description

Returns a mapping of NEM market participants (companies) to their registered Dispatchable Unit Identifiers (DUIDs), joined from the MMSDM PARTICIPANT and DUDETAILSUMMARY tables. Use this for corporate ownership analysis: rolling up generator output or bids from DUID-level data to the company level.

## Usage

```
aemo_participants()
```

## Value

An aemo\_tbl with columns participantid, participantclassid (e.g. GENERATOR, LOAD, TRADER), name (company name), duid, stationid, regionid, dispatchtype, schedule\_type. Rows are one per participant-DUID combination. If MMSDM is unreachable, returns an empty table with a warning.

## Source

AEMO NEMweb MMSDM archive, PARTICIPANT and DUDETAILSUMMARY tables. AEMO Copyright Permissions Notice.

## See Also

[aemo\\_units\(\)](#) for DUID-level registry without participant mapping.

Other reference: [aemo\\_dlf\(\)](#), [aemo\\_interconnectors\(\)](#), [aemo\\_mlf\(\)](#), [aemo\\_price\\_caps\(\)](#), [aemo\\_regions\(\)](#), [aemo\\_settlement\(\)](#), [aemo\\_snapshot\(\)](#), [aemo\\_units\(\)](#)

**Examples**

```
op <- options(aemo.cache_dir = tempdir())
try({
  pt <- aemo_participants()
  # DUIDs owned by AGL
  pt[grepl("AGL", pt$name, ignore.case = TRUE), ]
})
options(op)
```

aemo\_pasa

*Projected Assessment of System Adequacy (PASA)***Description**

Returns short-term (STPASA, 1-7 day) or medium-term (MTPASA, 2-year) system adequacy projections.

**Usage**

```
aemo_pasa(
  horizon = c("short", "medium"),
  region = NULL,
  start = NULL,
  end = NULL
)
```

**Arguments**

horizon	One of "short" (default) or "medium".
region	Optional NEM region code.
start, end	Optional window of run-times. Defaults to the last 24 hours.

**Value**

An aemo\_tbl.

**See Also**

Other forecast: [aemo\\_predispatch\(\)](#)

**Examples**

```
op <- options(aemo.cache_dir = tempdir())
try({
  p <- aemo_pasa(horizon = "short", region = "NSW1")
})
options(op)
```

---

aemo\_predispatch      *Price and demand forecasts (P5MIN, PREDISPATCH)*

---

### Description

Returns AEMO's forecast prices and demand for a NEM region. Two horizons:

- "p5min": 5-minute-ahead forecast, 12 intervals ahead, published every 5 minutes.
- "predispatch": 40-hour-ahead predispatch at 30-minute resolution, published every 30 minutes.

### Usage

```
aemo_predispatch(
  region,
  start,
  end,
  horizon = c("predispatch", "p5min"),
  run_datetime = NULL
)
```

### Arguments

region	NEM region code.
start, end	Window of forecast run-times.
horizon	One of "predispatch" (default) or "p5min".
run_datetime	Optional character or POSIXct. A specific RUN_DATETIME to pin to. NULL (default) returns every vintage issued in [start, end].

### Details

The 7-day predispatch publication was retired when 5-minute settlement commenced; for longer horizons use [aemo\\_pasa\(\)](#).

**Vintages.** PREDISPATCH and P5MIN forecasts are re-issued every 30 or 5 minutes respectively. Every vintage is archived by its RUN\_DATETIME. By default (run\_datetime = NULL) this function returns all vintages whose *file* timestamp falls in [start, end], i.e. all the forecasts *issued* during the window. The periodid / datetime columns on the returned rows give each forecast's *target* time.

For forecast-error research (comparing a forecast vintage against the realised dispatch) pass run\_datetime to pin a specific vintage:

```
# The PREDISPATCH run issued at 15:00 on 1 June 2024 --
# 80 half-hour-ahead rows covering 15:30 out to 31:30 hours.
v <- aemo_predispatch("NSW1", start = "2024-06-01", end = "2024-06-02",
  run_datetime = "2024-06-01 15:00")
```

This is the vintage-aware pattern used in Prakash (2023) *NEMSEER* (JOSS 8(92) 5883).

**Value**

An aemo\_tbl.

**See Also**

Other forecast: [aemo\\_pasa\(\)](#)

**Examples**

```
op <- options(aemo.cache_dir = tempdir())
try({
  now <- Sys.time()
  p <- aemo_predispatch("NSW1", start = now - 3600, end = now)
  head(p)
})
options(op)
```

---

aemo\_price

*Wholesale electricity prices*


---

**Description**

Returns 5-minute dispatch prices or 30-minute trading prices for a NEM region over a specified window. Filters intervention runs by default so the returned prices are the market clearing prices used in settlement.

**Usage**

```
aemo_price(
  region,
  start,
  end,
  interval = c("5min", "30min"),
  market = c("energy", "fcas"),
  intervention = FALSE
)
```

**Arguments**

region	One of "NSW1", "QLD1", "SA1", "TAS1", "VIC1". Accepts a vector.
start, end	Start and end times (inclusive). Character (parsed as AEST) or POSIXct.
interval	One of "5min" (default) or "30min".
market	One of "energy" (default, returns RRP) or "fcas" (returns the FCAS service RRP).
intervention	Logical. FALSE (default) returns only the market pricing run; TRUE returns both market and physical runs, with the intervention column preserved.

## Details

**Timestamps** are AEST (UTC+10, no daylight savings) to match AEMO's market clock. See the package-level documentation for the period-ending timestamp convention (a row stamped 00:05 is the 5-minute period ending at 00:05).

**Intervention.** DISPATCHPRICE contains both market pricing runs (INTERVENTION = 0) and physical / intervention runs (INTERVENTION = 1). The default filters to market runs. Pass `intervention = TRUE` to get both.

**30-minute settlement and the 5MS transition.** Before 1 October 2021 the NEM settled on 30-minute trading prices from TRADINGPRICE (TRADINGIS). On 1 October 2021 five-minute settlement (5MS) commenced and settlement moved to native 5-minute prices. When `interval = "30min"`:

- For the pre-5MS period (`start < 2021-10-01`): prices are read from TRADINGIS (TRADINGPRICE).
- For the post-5MS period: prices are derived by taking the arithmetic mean of the six 5-minute dispatch prices within each 30-minute trading interval, consistent with how AEMO calculates the TRADINGPRICE column in TradingIS post-5MS.

**Data availability.** NEMweb Current-directory files retain the last ~30 days of 5-minute dispatch files. Historical queries use the Archive daily-rollup files automatically; for queries older than the Archive window, use `aemo_nemweb_download()` with an MMSDM URL directly.

## Value

An `aemo_tbl`. Key columns include `settlementdate` (POSIXct AEST), `regionid`, `rrp` (AUD/MWh, energy) or the FCAS service RRP (AUD/MW), and `intervention`.

## Source

AEMO NEMweb <http://nemweb.com.au>, AEMO Copyright Permissions Notice.

## See Also

Other price: `aemo_fcas()`

## Examples

```
op <- options(aemo.cache_dir = tempdir())
try({
  now <- Sys.time()
  p <- aemo_price("NSW1", now - 3600, now)
  head(p)
})
options(op)
```

---

aemo_price_caps	<i>NEM market price caps, price floor, and CPT by financial year</i>
-----------------	--

---

## Description

Returns a static reference table of the **Market Price Cap (MPC)**, **Market Price Floor (MPF)**, **Cumulative Price Threshold (CPT)**, and **Administered Price Cap (APC)** that apply in each NEM financial year (1 July to 30 June). These are set by the AEMC under NER 3.9.4 and indexed annually to CPI.

## Usage

```
aemo_price_caps()
```

## Details

Use this table to interpret spot-price extremes: any RRP hitting the MPC (typically AUD 15,000 to 17,500 per MWh depending on year) indicates a price cap event; when the rolling-seven-day cumulative price in a region exceeds the CPT (~AUD 1.5 million per MWh-equivalent), AEMO imposes the APC (AUD 300/MWh) until the CPT falls back below the threshold.

The table covers 2015-16 onwards and is updated on each package release. For the authoritative current values see <https://www.aemc.gov.au/regulation/energy-rules/national-electricity-rules> and the AEMO Reliability Settings publications.

## Value

An aemo\_tbl with columns year (financial year, "YYYY-YY"), market\_price\_cap\_aud\_per\_mwh, market\_price\_floor\_aud\_per\_mwh, cumulative\_price\_threshold\_aud, administered\_price\_cap\_aud\_per\_mwh, and source.

## See Also

Other reference: [aemo\\_dlf\(\)](#), [aemo\\_interconnectors\(\)](#), [aemo\\_mlf\(\)](#), [aemo\\_participants\(\)](#), [aemo\\_regions\(\)](#), [aemo\\_settlement\(\)](#), [aemo\\_snapshot\(\)](#), [aemo\\_units\(\)](#)

## Examples

```
caps <- aemo_price_caps()
head(caps)
```

---

aemo_regions	<i>NEM regions</i>
--------------	--------------------

---

### Description

Returns a static table of the five NEM regions with metadata. The `market_timezone` column is the AEMO market clock (AEST, UTC+10, no DST, year-round) that applies to every timestamp in NEMweb files; `wall_timezone` is the local civil time zone consumers experience (observes DST in NSW/VIC/TAS/SA).

### Usage

```
aemo_regions()
```

### Value

An `aemo_tbl` with columns `region`, `name`, `state`, `wall_timezone`, `market_timezone`, `commenced`.

### See Also

Other reference: [aemo\\_dlf\(\)](#), [aemo\\_interconnectors\(\)](#), [aemo\\_mlf\(\)](#), [aemo\\_participants\(\)](#), [aemo\\_price\\_caps\(\)](#), [aemo\\_settlement\(\)](#), [aemo\\_snapshot\(\)](#), [aemo\\_units\(\)](#)

### Examples

```
aemo_regions()
```

---

aemo_rooftop_pv	<i>Rooftop PV actuals and forecasts</i>
-----------------	---

---

### Description

Returns AEMO's region-level estimate of rooftop PV generation, either actuals or forecasts. Published at 30-minute resolution.

### Usage

```
aemo_rooftop_pv(region, start, end, type = c("actual", "forecast"))
```

### Arguments

<code>region</code>	NEM region code.
<code>start, end</code>	Window.
<code>type</code>	One of "actual" (default) or "forecast".

**Details**

The "actual" figure is an AEMO estimate derived from the APVI sampling model and weather data, not metered SCADA output. It is the best available public measure of aggregate rooftop PV generation but is subject to revision.

**Value**

An aemo\_tbl.

**See Also**

Other dispatch: [aemo\\_bids\(\)](#), [aemo\\_constraints\(\)](#), [aemo\\_dispatch\\_units\(\)](#), [aemo\\_fcas\\_enablement\(\)](#), [aemo\\_gencon\(\)](#), [aemo\\_interconnector\(\)](#), [aemo\\_market\\_notices\(\)](#), [aemo\\_outages\(\)](#), [aemo\\_spd\\_constraints\(\)](#)

**Examples**

```
op <- options(aemo.cache_dir = tempdir())
try({
  now <- Sys.time()
  r <- aemo_rooftop_pv("NSW1",
                      start = now - 3600, end = now)
  head(r)
})
options(op)
```

---

aemo_settlement	<i>Settlement cash-flow and residue tables</i>
-----------------	--

---

**Description**

Returns settlement reconciliation tables from MMSDM. Three views are exposed, corresponding to the three tables gentailer hedging workflows most commonly need:

**Usage**

```
aemo_settlement(table = c("cashflow", "fcas_recovery", "residues"), start, end)
```

**Arguments**

table	One of "cashflow", "fcas_recovery", or "residues".
start, end	Window (inclusive) applied to SETTLEMENTDATE / PAYMENTDATE.

**Details**

- "cashflow" (default): SETCFM (NEMDE-derived energy settlement amounts per participant per trading interval).
- "fcas\_recovery": SETFCASREGIONRECOVERY (the recovery allocation of FCAS costs to customer load per region per trading interval).
- "residues": SETRESIDUECONTRACTPAYMENT (settlement residue auction (SRA) contract payments against interconnector settlement residues).

**Access.** These tables are in the MMSDM monthly archive (not the NEMweb Current retention). Expect two-month latency between trading date and availability.

**Value**

An `aemo_tbl` with the raw MMSDM columns for the requested table.

**Source**

AEMO NEMweb MMSDM archive, SETCFM / SETFCASREGIONRECOVERY / SETRESIDUECONTRACTPAYMENT. AEMO Copyright Permissions Notice.

**See Also**

[aemo\\_mlf\(\)](#) for the transmission loss factors that scale settlement amounts; [aemo\\_interconnector\(\)](#) for the flow side of the residue calculation.

Other reference: [aemo\\_dlf\(\)](#), [aemo\\_interconnectors\(\)](#), [aemo\\_mlf\(\)](#), [aemo\\_participants\(\)](#), [aemo\\_price\\_caps\(\)](#), [aemo\\_regions\(\)](#), [aemo\\_snapshot\(\)](#), [aemo\\_units\(\)](#)

**Examples**

```
op <- options(aemo.cache_dir = tempdir())
try({
  s <- aemo_settlement(table = "cashflow",
                      start = "2024-06-01",
                      end   = "2024-06-02")

  head(s)
})
options(op)
```

---

aemo\_snapshot

*Snapshot provenance for an aemo\_tbl*

---

**Description**

Returns a one-row-per-source provenance record for an `aemo_tbl`, suitable for inclusion in a paper appendix, a Zenodo deposit, or a CRAN-style data manifest. The snapshot captures:

## Usage

```
aemo_snapshot(x)
```

## Arguments

x                    An aemo\_tbl (or a list of them).

## Details

- title: the human-readable title of the table;
- source: the NEMweb / MMSDM URL family the table was drawn from;
- licence: the AEMO Copyright Permissions Notice (always);
- retrieved: the POSIXct timestamp at which the table was constructed;
- rows, cols: observed dimensions;
- sha256: a SHA-256 digest of the table's printed body, stable across R versions and platforms.

The sha256 column is what makes the snapshot *pinnable*: if the same query returns a different hash, the underlying data has changed (or the row-order has, which is also worth knowing). Pair with a git commit of the analysis script to give a reader a closed reproducibility loop.

## Value

A data frame with one row per table.

## See Also

Other reference: [aemo\\_dlf\(\)](#), [aemo\\_interconnectors\(\)](#), [aemo\\_mlf\(\)](#), [aemo\\_participants\(\)](#), [aemo\\_price\\_caps\(\)](#), [aemo\\_regions\(\)](#), [aemo\\_settlement\(\)](#), [aemo\\_units\(\)](#)

## Examples

```
x <- structure(
  data.frame(settlementdate = Sys.time(), region = "NSW1", rrp = 80),
  aemo_title = "Demo",
  aemo_source = "http://nemweb.com.au",
  aemo_licence = "AEMO Copyright Permissions Notice",
  aemo_retrieved = Sys.time(),
  class = c("aemo_tbl", "data.frame")
)
aemo_snapshot(x)
```

---

aemo\_spd\_constraints *SPD constraint tables (regions, interconnectors, connection points)*

---

### Description

Returns the SPD (Security and Projected Dispatch) constraint coefficient tables from MMSDM. Where GENCONDATA gives the high-level equation definition, the SPD tables give the per-term *coefficients* used in the NEMDE dispatch optimisation:

### Usage

```
aemo_spd_constraints(
  table = c("region", "interconnector", "connection_point"),
  constraint_id = NULL
)
```

### Arguments

`table` One of "region" (default), "interconnector", or "connection\_point".  
`constraint_id` Optional character vector of GENCONID/CONSTRAINTID values.

### Details

- "region": SPDREGIONCONSTRAINT (regional-demand and regional-generation terms).
- "interconnector": SPDINTERCONNECTORCONSTRAINT (interconnector-flow terms).
- "connection\_point": SPDCONNECTIONPOINTCONSTRAINT (per-DUID connection-point terms).

These tables are required for NEM dispatch replication (the nempy Python package, Gorman, Bruce & MacGill 2022, *JOSS* 7(70) 3596, doi:10.21105/joss.03596, uses all three when reproducing NEMDE solves).

### Value

An aemo\_tbl with columns from the requested SPD table. GENCONID and FACTOR (the coefficient) are always present; other columns vary by table.

### Source

AEMO NEMweb MMSDM archive, SPDREGIONCONSTRAINT / SPDINTERCONNECTORCONSTRAINT / SPDCONNECTIONPOINTCONSTRAINT.

### See Also

[aemo\\_gencon\(\)](#) for the equation-level metadata, [aemo\\_constraints\(\)](#) for the 5-min binding-constraint feed with shadow prices.

Other dispatch: [aemo\\_bids\(\)](#), [aemo\\_constraints\(\)](#), [aemo\\_dispatch\\_units\(\)](#), [aemo\\_fcas\\_enablement\(\)](#), [aemo\\_gencon\(\)](#), [aemo\\_interconnector\(\)](#), [aemo\\_market\\_notices\(\)](#), [aemo\\_outages\(\)](#), [aemo\\_rooftop\\_pv\(\)](#)

## Examples

```
op <- options(aemo.cache_dir = tempdir())
try({
  s <- aemo_spd_constraints(table = "interconnector")
  head(s)
})
options(op)
```

---

aemo_throttle	<i>Configure request throttling</i>
---------------	-------------------------------------

---

## Description

Controls the delay between successive NEMweb requests. Defaults to 1 second (half a request per second).

## Usage

```
aemo_throttle(delay = 1)
```

## Arguments

delay	Numeric. Minimum delay between requests in seconds. Internally this becomes <code>httr2::req_throttle(rate = 1/delay)</code> .
-------	--

## Value

Invisibly returns the previous value.

## See Also

Other configuration: [aemo\\_cache\\_info\(\)](#), [aemo\\_clear\\_cache\(\)](#)

## Examples

```
old <- aemo_throttle(0.5) # 2 requests per second
aemo_throttle(old)      # restore
```

---

aemo_units	<i>NEM generators (DUID registry)</i>
------------	---------------------------------------

---

## Description

Downloads the DUDETAILSUMMARY table from the most recent MMSDM monthly archive and returns one row per registered DUID (Dispatchable Unit Identifier) with station, region, dispatch type, classification, and schedule type. Typical output is 500+ DUIDs covering scheduled, semi-scheduled, and non-scheduled generators, bidirectional storage (BESS), and loads.

## Usage

```
aemo_units(as_of = NULL)
```

## Arguments

`as_of` Optional Date or POSIXct. Returns the DUID registry as it was on that date. NULL (default) returns the current registry.

## Details

**Effective-date filtering.** DUDETAILSUMMARY is effective-dated (START\_DATE, END\_DATE per row with multiple VERSIONNO vintages per DUID over time). The default (as\_of = NULL) returns rows whose [START\_DATE, END\_DATE] interval covers the date the MMSDM archive was published: i.e. the *current* registry. Pass an as\_of date to get the registry as it was on that date (essential for historical analysis: Liddell’s four DUIDs were retired in April 2023; pre-2023 queries need them).

This matches the as-of-join pattern documented in Gorman et al. (2018) *NEMOSIS* (APSRC) for correct historical joins.

## Value

An aemo\_tbl keyed by duid. Columns include (from DUDETAILSUMMARY): duid, stationid, regionid, dispatchtype (GENERATOR / LOAD), connectionpointid, schedule\_type (SCHEDULED / SEMI-SCHEDULED / NON-SCHEDULED), start\_date, end\_date.

## Source

AEMO NEMweb MMSDM archive, DUDETAILSUMMARY table, AEMO Copyright Permissions Notice.

## See Also

Other reference: [aemo\\_dlf\(\)](#), [aemo\\_interconnectors\(\)](#), [aemo\\_mlf\(\)](#), [aemo\\_participants\(\)](#), [aemo\\_price\\_caps\(\)](#), [aemo\\_regions\(\)](#), [aemo\\_settlement\(\)](#), [aemo\\_snapshot\(\)](#)

## Examples

```
op <- options(aemo.cache_dir = tempdir())
try({
  # Current DUID registry
  u <- aemo_units()

  # DUIDs as they were on 1 March 2023 (pre-Liddell retirement)
  u_2023 <- aemo_units(as_of = "2023-03-01")
})
options(op)
```

---

print.aemo_tbl	<i>Print an aemo_tbl</i>
----------------	--------------------------

---

## Description

Print an aemo\_tbl

## Usage

```
## S3 method for class 'aemo_tbl'
print(x, ...)
```

## Arguments

x	An aemo_tbl.
...	Passed to the next print method.

## Value

Invisibly returns x.

## Examples

```
x <- data.frame(settlementdate = Sys.time(), region = "NSW1", rrp = 80)
x <- structure(x, aemo_title = "Demo", aemo_source = "http://nemweb.com.au",
  aemo_licence = "AEMO Copyright Permissions Notice",
  aemo_retrieved = Sys.time(),
  class = c("aemo_tbl", "data.frame"))

print(x)
```

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